

Public Service Company  
of New Mexico  
Alvarado Square MS 0408  
Albuquerque, NM 87158



February 9, 1999

Certified Mail  
Return Receipt Requested



Mr. Carl Will  
New Mexico Environment Department  
Hazardous and Radioactive Materials Bureau (HRMB)  
2044 Galisteo Street  
P.O. Box 26110  
Santa Fe, NM 87502

Dear Mr. Will:

Subject: Specifications for Cobisa Production Well  
to be Located at Person Generating Station

In previous correspondence the HRMB requested that Public Service Company of New Mexico (PNM) submit for approval the design specifications for a planned production well to be located at the Person Generating Station. The production well is to be installed to provide a source of water to the planned Cobisa-Person Gas Turbine Generator.

The HRMB made this request to ensure that the proposed well will in no way have an unacceptable adverse effect on the existing groundwater corrective action system at the Person Station RCRA facility (NMT360010342).

Enclosed is a copy of the report Design Report, Person Station, Gas Turbine Production Well, prepared by METRIC Corporation. The report was prepared in consultation with Mr. Baird Swanson, NMED Groundwater Bureau and should contain the necessary information for HRMB to make an evaluation. If you should need additional information please let me know.

PNM and Cobisa would like to have an approved well design by April 1, 1999.

If you have any questions, please contact me at (505) 241-2998.

Sincerely,

Ron D. Johnson  
Technical Group Leader

cc: Baird Swanson - NMED GWB  
Gregg Platt - Cobisa Corp. w/o enclosure  
Steve Anderson - PNM 1206 w/o enclosure

**DESIGN REPORT  
PERSON STATION  
GAS TURBINE PRODUCTION WELL**

**PREPARED FOR  
COBISA - PERSON POWER COMPANY, INC.  
HOUSTON, TEXAS**

**PREPARED BY  
METRIC CORPORATION  
ALBUQUERQUE, NEW MEXICO**

**JANUARY 1999**

# **DESIGN REPORT**

## **PERSON STATION GAS TURBINE PRODUCTION WELL**

### **INTRODUCTION**

The proposed production well will provide up to 250 gallons/minute to meet the water demands of the proposed gas turbine at Person Station.

The primary design constraint is a chlorinated solvent plume located in the shallow groundwater (about 150 ft. below ground level at the production well location) to the north of the proposed production well. The well has been located such that it is beyond the limits of the solvent plume (see FIGURE 1). The well has been designed to prevent it from drawing the shallow groundwater plume toward the production well.

### **GEOLOGY**

Substantial geologic investigations have been conducted at Person Station in conjunction with delineation of chlorinated solvent plumes. The fence diagram (PLATE 7) summarizes the geology of the Person Station site down to a depth of about 900 feet. PLATE 7 was extracted from "Person Station Corrective Action Directive Assessment Summary Report Supplemental Report on Deep Aquifer Contaminants", December 1995, METRIC Corporation. The monitor well locations used to construct PLATE 7 are shown on FIGURE 1.

The fence diagram was constructed using geophysical logs from each of the monitor wells shown on the diagram. The logs confirm that extensive correlatable clayey layers exist throughout the site as shown on PLATE 7. The existence of the extensive clay layers provide assurance that a production well can be constructed to produce 250 gpm without impacting either the shallow groundwater plume shown on FIGURE 1 or a much smaller, much less concentrated plume in the 800 ft. below ground level zone centered around well PSMW-24 (see FIGURE 1).

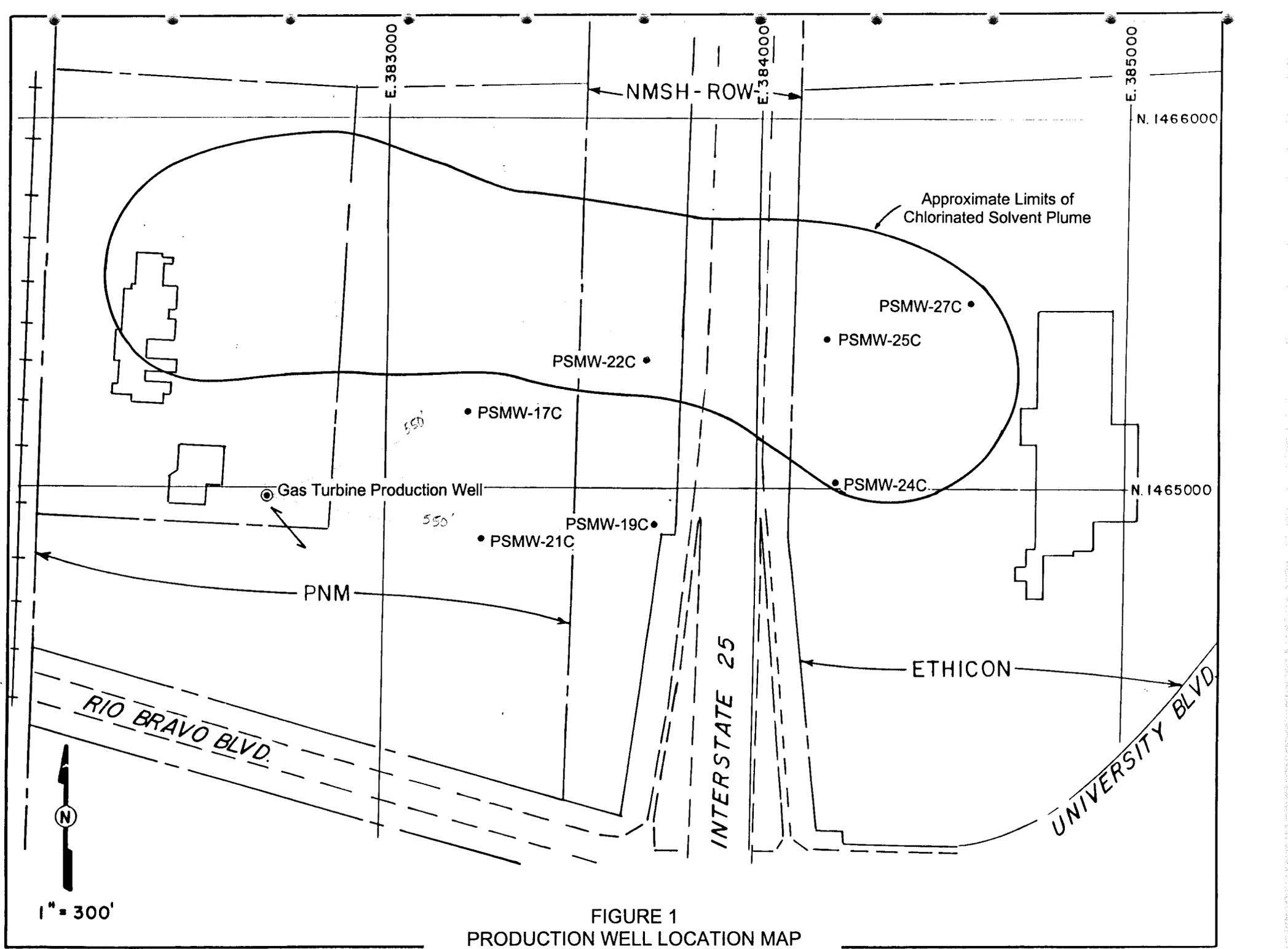


FIGURE 1  
 PRODUCTION WELL LOCATION MAP  
 PERSON STATION

## **WELL DESIGN**

The proposed well design is shown on PLATE 1. The details of the design are based on geophysical logs from monitor well PSMW-17C as shown on PLATE 1. The well design indicates the well will be screened from 420 ft. to 490 ft. The annular space will be cemented from ground level to 400 ft. to minimize potential impact to the shallow plume which is at about 150 ft. to 170 ft. below ground level. The well will not be drilled deep enough to impact the 800 foot below ground level zone.

Historically very low concentrations (generally less than 5 ppb) of chlorinated solvents have been observed at monitor well PSMW-19C (see FIGURE 1) in the interval where the proposed production well will be screened. These concentrations have declined further in recent years. As a result, it is believed that there is very little chance significant concentrations of chlorinated solvents will ever be observed in the proposed production well. The depth of cement and the screened intervals will be finalized based on geophysical logging of the production well pilot hole.

## **WELL SPECIFICATIONS**

Production well construction specifications are included in APPENDIX A.

**APPENDIX A**  
**PRODUCTION WELL SPECIFICATIONS**

## **SPECIFICATIONS FOR CONSTRUCTION OF A PRODUCTION WELL FOR PERSON STATION GAS TURBINE**

### **Scope**

The work covered by this specification includes furnishing of all labor, tools, equipment and materials, and performing all operations in connection with drilling and equipping a 250 gpm production well at the Person Station Gas Turbine site in southeast Albuquerque, New Mexico.

### **Mobilization - Demobilization**

Mobilization-demobilization shall consist of transporting the contractor's personnel, equipment, and operating supplies to and from the Person Station job site.

### **Pilot Hole**

A minimum 6 1/4 in. diameter pilot hole shall be drilled using the mud rotary method. The drilling fluid shall consist of bentonite and potable water having a viscosity between 30 and 35 sec./qt. and a weight not exceeding 8.9 lb./gal. No additives may be used in the drilling fluid unless approved by the Engineer.

### **Open Hole Geophysical Logs**

A series of geophysical logs including gamma ray, density, neutron, S.P., single point resistance, long and short normal, and caliper shall be performed in the pilot hole. The geophysical logs will be used by the Engineer to finalize the casing and well screen design.

### **Production Hole**

The production hole will be reamed to 12 1/4 in. diameter using the mud rotary method. The drilling fluid shall consist of bentonite and potable water having a viscosity between 30 and 35 sec./qt. and a weight not exceeding 8.9 lb./gal. No additives may be used in the drilling fluid unless approved by the Engineer.

### **Well Screen**

The well shall be equipped with 8 5/8 in. wire wound stainless steel screen. The screen shall be equipped with welded collars for coupling the screen lengths. The screen slot size(s) will be determined by the Engineer.

### **Well Casing**

The well shall be equipped with 300 ft. of 8 5/8 in. steel casing with 0.322 in. wall thickness. It shall meet ASTM-A53 Grade B steel standards. The casing shall be equipped with welded collars for coupling the casing lengths. The completed well shall be sufficiently plumb and straight to allow passage of a 7 7/8 in. diameter x 20 ft. long mandrel to the total depth of the well.

### **Gravel Pack**

The annular space between the production hole and the screen or casing shall be filled

with rounded silica sand from total depth to the depth shown on the plans. The gradation of the gravel pack material will be determined by the Engineer.

#### **Cement Seal**

The annular space between the production hole and the casing shall be filled with 5% bentonite cement grout having a weight of 13.0 to 13.5 lbs./gal. from the top of the gravel pack to ground level. The grout shall be placed using a 1 1/4 in. tremie pipe.

#### **Well Development**

The completed well shall be developed by simultaneous jetting and pumping with a submersible pump capable of producing 400 gpm from a depth of 300 ft. The development water shall be discharged at a location 1200 ft. from the well site as directed by the Engineer. The development shall continue until no additional increases in specific capacity of the well can be achieved by further development efforts.

#### **Test Pumping**

The completed well shall be test pumped for a period of 48 hours with a pump capable of producing 250 gpm from a depth of 300 ft. The contractor shall furnish, install, operate, and remove the test pump, drop pipe wire, and generator necessary to conduct the test. The Engineer will collect water level measurements during the 48-hour pumping period and a 48-hour recovery period.

#### **Well Disinfection**

The well shall be disinfected by a method acceptable to the Engineer achieving a 100 ppm chlorine solution in all portions of the well casing.

#### **Pitless Adapter**

The well casing shall be equipped with a Baker Model 4PS810WBWE04T4 spool type pitless adapter.

#### **Permanent Pump**

The completed well shall be equipped with a submersible pump. The pump shall be a Goulds Model 6CHC030, 30 hp, 6 stage set on 294 feet of 4" Sch. 40 galvanized steel pipe.

**TO VIEW THE MAP AND/OR  
MAPS WITH THIS DOCUMENT,  
PLEASE CALL THE  
HAZARDOUS WASTE BUREAU  
AT 505-476-6000 TO MAKE AN  
APPOINTMENT**